

1 What is claimed is:

2 1. An electronic circuit chip comprising:

3 a memory for storing information defining an encryption procedure assigned to  
4 the electronic circuit chip;

5 at least one input to the electronic circuit chip for writing, to the memory, the  
6 information defining the encryption procedure assigned to the electronic circuit chip, and  
7 for receiving data to be encrypted by the encryption procedure assigned to the electronic  
8 circuit chip;

9 encryption circuitry for reading from the memory the information defining the  
10 encryption procedure assigned to the electronic circuit chip, and for encrypting the data  
11 from said at least one input to the electronic circuit chip according to the encryption  
12 procedure assigned to the electronic circuit chip, to produce encrypted data; and

13 at least one output from the electronic circuit chip for transmitting the encrypted  
14 data produced by the encryption circuitry;

15 wherein the electronic circuit chip is constructed so that the information defining  
16 the encryption procedure assigned to the electronic circuit chip cannot be read from the  
17 memory from any output of the electronic circuit chip; and

18 wherein the electronic circuit chip is constructed so that it is virtually impossible  
19 to recover the information in the memory by probing, inspection, or disassembly; and

20 which includes a metal shielding layer over the memory so that the information  
21 stored in the memory cannot be read by visual inspection or probing.

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23 2. The electronic circuit chip as claimed in claim 1, wherein the electronic

1 circuit chip is a monolithic semiconductor integrated circuit chip.

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3 3. The electronic circuit chip as claimed in claim 1, wherein the memory is  
4 an electrically erasable and programmable read-only memory.

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6 4. The electronic circuit chip as claimed in claim 1, wherein said encryption  
7 circuitry includes a microprocessor for computing the encrypted data.

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9 5. The electronic circuit chip as claimed in claim 4, wherein the  
10 microprocessor is constructed to execute an encryption program stored in the memory,  
11 and the encryption program defines the encryption procedure assigned to the electronic  
12 circuit chip.

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14 6. The electronic circuit chip as claimed in claim 4, wherein said  
15 microprocessor is programmed to read an encryption key from the memory, and to  
16 compute the encrypted data using the encryption key, and the encryption key defines the  
17 encryption procedure assigned to the electronic circuit chip.

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19 7. An electronic circuit chip comprising:  
20 a memory for storing information;  
21 a microprocessor coupled to the memory for reading information from the  
22 memory;  
23 at least one input to the electronic circuit chip for receiving information to be

1 written to the memory, and for receiving data to be processed by the microprocessor; and  
2 at least one output from the electronic circuit chip for transmitting data processed  
3 by the microprocessor;

4 wherein the electronic circuit chip is constructed so that information can be stored  
5 in the memory but not read from any output of the electronic circuit chip, and the  
6 microprocessor is programmable for encrypting data in accordance with an encryption  
7 procedure defined by information that can be stored in the memory but not read from any  
8 output of the electronic circuit chip;

9 wherein the electronic circuit chip is constructed so that it is virtually impossible  
10 to recover the information in the memory by probing, inspection, or disassembly; and

11 which includes a metal shielding layer over the memory so that the information  
12 stored in the memory cannot be read by visual inspection or probing.

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14 8. The electronic circuit chip as claimed in claim 7, wherein the electronic  
15 circuit chip is a monolithic semiconductor integrated circuit chip.

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17 9. The electronic circuit chip as claimed in claim 7, wherein the memory is  
18 an electrically erasable and programmable read-only memory.